

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A locating unit equipped with a locating pin to be inserted through a locating bore formed in a work for positioning and supporting the work in a fixed place, said locating unit comprising:

a locating pin having a root portion formed with a work seating surface fixed to said locating pin and located in a fixed place for a work to be positioned; and

a work ~~sealing~~ seating detection mechanism mounted to said root portion, with a seating detection element adapted to be moved with said work and movable relative to said work seating surface to detect a seating of said work on said work seating surface.

2. (Previously Presented) The locating unit according to claim 1, further comprising:

a clamp unit internally located in said locating pin and adapted to clamp said work in the fixed place after said work has been positioned with said locating pin.

3. (Currently Amended) ~~The locating unit according to claim 1,~~ A locating unit equipped with a locating pin to be inserted through a locating bore formed in a work for positioning and supporting the work in a fixed place, said locating unit comprising:

a locating pin having a root portion formed with a work seating surface fixed to said locating pin and located in a fixed place for a work to be positioned; and

a work seating detection mechanism mounted to said root portion, with a seating detection element movable relative to said work seating surface to detect a seating of said work on said work seating surface; wherein

said seating detection element comprises a detection pin adapted to protrude or retract from the work seating surface, and wherein

said work seating detection mechanism is operative to detect the seating of said work in response to a protruding or retracting movement of said detection pin caused by a seating or unseating action of said work.

4. (Previously Presented) A vehicle body assembly machine for implementing a relative positioning operation among a plurality of panel-shaped works, which form a part of a vehicle body of an automobile, prior to welding and joining the plurality of the works, said vehicle body assembly machine comprising:

a plurality of locators independently mounted for respective works and each including a locating unit mainly constructed of a locating pin for positioning and supporting each of said works, said locating unit having a capability of self-isolating movement to provide a function of arbitrarily altering at least a two-dimensional position of said locating unit;

wherein said locators individually perform said self-isolating movements between work set positions, wherein said works are set with respect to said respective locators and a relative-positioning final location, wherein a mutual relative-positioning operation of said works are finally implemented to individually move said locating units in forward or retracted directions to perform said mutual relative-positioning operation among said works; and

wherein each of said locating units includes a locating pin adapted to be inserted through a locating bore formed in each of said work for positioning and supporting said each work, said locating pin having a root portion formed with a work seating surface, and a work seating detection mechanism mounted at said work seating surface for detecting the presence of seating of said each work on said work seating surface.

5. (Original) The vehicle body assembly machine according to claim 4, wherein:

each of said locators has an operating freedom in orthogonal three axes to allow a relevant locator to have a self-isolating movement for enabling a three-dimensional position of the relevant locator to be arbitrarily altered.

6. (Previously Presented) The vehicle body assembly machine according to claim 5, wherein:

said plurality of locators are located for each of said works and are operable to move said locating units in said forward or retracted directions in mutual synchronism with one another during the relative positioning operation of said work in the mutual relationship.

7. (Previously Presented) A locating unit equipped with a locating pin to be inserted through a locating bore formed in a work for positioning and supporting the work in a fixed place, said locating unit comprising:

locating pin means having a root portion formed with a work seating surface fixed to said locating pin means and located in a fixed place for a work to be positioned; and

a work seating detection means mounted to said root portion, with a seating detection element movable relative to said work seating surface for detecting a seating of said work on said work seating surface.

8. (Currently Amended) A vehicle body assembly machine for implementing a relative positioning operation among a plurality of panel-shaped works, which form a part of a vehicle body of an automobile, prior to welding and joining the plurality of the ~~work~~ works, said vehicle body assembly machine comprising:

means for positioning and supporting each of said works and including a plurality of locating units each having a capability of self-isolating movement to provide a function of arbitrarily altering at least a two-dimensional position of said locating unit:

wherein said positioning and supporting means perform said self-isolating movements between work set positions, wherein said works are set with respect to said respective locating units and a relative-positioning final location, wherein a mutual relative-positioning of said works are finally implemented to individually move said locating unit in forward or retracted directions to perform said mutual relative-positioning operation among said works; and

each of said locating units includes a locating pin adapted to be inserted through a locating bore formed in each of said ~~work~~ works for positioning and supporting said each work, said locating pin having a root portion formed with a work seating surface, and a work seating detection mechanism mounted at said work seating surface for detecting the presence of seating of said each work on said work seating surface.

9. (Currently Amended) A method for positioning and supporting a work in a fixed place with a locating unit equipped with a locating pin to be inserted through a locating bore formed in the work, said method comprising:

obtaining a locating pin formed at a root portion thereof with a work seating surface fixed to said locating pin and located in a fixed place for a work to be positioned, a work seating detecting mechanism mounted to said root portion, with a seating detection element adapted to be moved with said work and movable relative to said work seating surface and a clamp arm operable within said locating pin;

positioning and supporting said work on said work seating surface;

detecting a seating of said work on said work seating surface with said work seating detection element; and

clamping said work on said work seating surface with said clamp arm.

10. (Currently Amended) A method for implementing a relative positioning operation among a plurality of panel-shaped works, which form a part of a vehicle body of an automobile, prior to welding and joining the plurality of the works, said method comprising:

preparing a plurality of locators independently mounted for respective works and each including a locating unit having a capability of self-isolating movement to provide a function of arbitrarily altering at least a two-dimensional position of said locating unit, said locating unit including a locating pin adapted to be inserted through a locating bore formed in each of said ~~work~~ works for positioning and supporting said each work, said locating pin having a root portion formed with a work seating surface, and a work seating detection mechanism mounted at said work seating surface;

operating said locators individually to perform said self-isolating movements between work set positions, wherein said works are set with respect to said respective locators, and a relative-positioning final location, wherein a mutual relative-positioning operation of said works are finally implemented to individually move said locating units in forward or retracted directions while performing said mutual relative-positioning operation among said works;

detecting the presence of seating of said works on said work seating surface with said work seating detection mechanism; and

clamping said works in said relative-positioning final location.

11. (Previously Presented) The locating unit according to claim 1, wherein said seating detection element resides within a range of outside dimensions of said work seating surface, in a view from thereabove.

12. (Previously Presented) A locating unit equipped with a locating pin to be inserted through a locating bore formed in a work for positioning and supporting the work in a fixed place, said locating unit comprising:

a locating pin having a stationary work seating surface; and

a work seating detection mechanism including a detection element adapted to detect the presence of seating of said work on said work seating surface; wherein said work seating detection mechanism is movable relative to said work seating surface.

13. (Currently Amended) A locating unit equipped with a locating pin to be inserted through a locating bore formed in a work for positioning and supporting the work in a fixed place, said locating unit comprising:

a locating pin having a root portion formed with a work seating surface; and

a work seating detection mechanism mounted to said root portion, the work seating detection mechanism including a seating detection element **adapted to be moved with said work and** movable relative to said work seating surface to detect the presence of seating of said work on said work seating surface.